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On the rationality of Case ☆

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ABSTRACT

Case marking has long resisted rationalization in terms of language-external systems of cognition, representing a classical illustration in the generative tradition for an apparently purely 'formal' or 'syntactic' aspect of grammatical organization. I argue that this impasse derives from the prevailing absence of a notion of grammatical meaning, i.e. meaning unavailable lexically or in non-linguistic cognition and uniquely dependent on grammatical forms of organization. In particular, propositional forms of reference, contrary to their widespread designation as 'semantic', are arguably not only grammar-dependent but depend on relations designated as structural 'Cases'. I further argue that these fail to reduce to thematic structure, Person, Tense, or Agreement. Therefore, Case receives a rationalization in terms of how lexical memory is made referential and propositional in language. Structural Case is 'uninterpretable' (bereft of content) only if a non-grammatical notion of meaning is employed, and *sapiens*-specific cognition is (implausibly) regarded as unmediated by language.

1. The mystery of Case

Obligatory marking for the so-called 'structural' Cases, Nominative (NOM) and Accusative (ACC), has posed significant challenges in terms of its rationalization in language-independent terms. Looking at the history of Case theory in the Government & Binding (GB) era of Universal Grammar in the modern sense (see Lasnik, 2008, for a review), it appears as if thematic roles were as close as we could get to rationalizing Case in terms of independently given 'semantic' notions.[1] When thematic roles, which clearly help to rationalize non-structural Case ('inherent' and 'lexical' Case: cf. Woolford, 2006; Legate, 2008, 2012) give out, structural Case seems to transpire as an apparently meaningless – purely 'syntactic' – aspect of grammatical organization, reflecting a formal licensing constraint on nominal arguments with no deeper rationale. This prevailing uncertainty over the nature of structural Case reflects our deeper and equally prevailing uncertainty over the independent rationale of grammar itself, insofar as the latter goes beyond what seems minimally required to make a system based on lexical meaning semantically compositional. It is clear that grammar needs to be *combinatorial* – but why should it have *Case*?

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[1] On the other hand, Bowers (2010) rightly stresses that even thematic roles, strictly speaking, are not purely 'semantic' in a non-linguistic sense and instead belong to the realm of 'grammatical' semantics already: they are not determined by the lexical content of feature specifications of particular arguments. It is just not the kind of grammatical semantics relevant to marking for structural Case, as I will argue here.

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To illustrate, it seems to make no difference to the content or reference of the pronoun in (1) that it is obligatorily marked overtly for ACC, a marking that goes missing morphologically when the pronoun is replaced by a full nominal (2a,b), and that changes to NOM when the embedded clause is finite (2c) or the matrix clause is passivized (2d), without any other proposition being expressed:

(1) a. John liked **him**/*__he__
b. John believed **him**/*__he__ to be right

(2) a. John likes **Bill**
b. John believes **Bill** to be right
c. John believes **he**/*__him__ is right
d. **He**/*__Him__ was believed (by John) to be right

GB-Case Theory (Chomsky, 1981) partially abstracts from morphological variation in Case marking, taking *Bill* to be obligatorily marked for 'abstract' ACC in (2a,b). But this does not make such marking more interpretable. A second example, from Uriagereka (2008:107), involves obligatory control of an embedded implicit ('PRO') subject: (3a) and (3b) seem semantically identical in English, assuming that 'that' replaces 'to lose weight'. Yet, when we inspect their respective translations into Basque, we see very different patterns of Case assignment in the two cases:

(3) a. I tried [PRO to lose weight]
b. I tried that.

(4) a. Ni [PRO pisua galtzen] saiatu naiz
I.ABS weight-ABS lose-nominalizer-LOC try-PART I.be
'I have tried to lose weight'
b. Nik hori saiatu dut
I.ERG that-ABS try-PART I.have.III
'I have tried that'

(4b) exhibits regular transitive Case typology. The transitive *saiatu* ('try') goes with the transitive auxiliary *dut*, which codes Agreement with both the ergative (ERG) subject *nik* and the absolutive (ABS) object, *hori* ('that'). Where the syntactic argument of *try* is the clause, however, as in (4a), the auxiliary is *naiz*, which is unaccusative like English *be*, assigning no ACC. It now only agrees with the absolutive subject, *ni*. In short, the regular Case/Agreement system is not activated in (4a), and the embedded clause is treated as a domain invisible to Case-assignment. Again, no change of content seems to be involved.

The uninterpretability of (structural) Case is a wide consensus in generative grammar today. Svenonius (2007:20) states that 'attempts to [...] reduce structural cases to semantically-based feature systems [...] go back hundreds of years and have invariably failed'. Pesetsky and Torrego (2011:52) confirm that principles of Case assignment 'look quite specific to syntax and morphology, with little apparent connection to external cognitive systems'. As Bobalijk and Wurmbrand (2008:9) put the same point, there is no obvious 'interface pressure' for the existence of structural Case. Chomsky (2000a:127) points out that '[s]omething like θ-theory [governing the assignment of thematic roles to arguments] is a property of any language-like system, whereas [Case] checking theory is specific to human language...'. In current mainstream Minimalism, the rationale of Case remains at best indirect, as we review in the next section. It is thus no surprise to find that in the philosophy of language, Case has never figured even as a topic: the lack of its philosophical significance is taken for granted. Against this consensus I will argue here:

(A) Reference is uniquely grammatical;
(B) Case licenses referential arguments and hence it is a grammatically meaningful category;
(C) Nothing else (either in non-grammatical cognition or in grammar itself) does that.

The state of the art in GB/Minimalism, which is my point of departure here, is summarized in Section 2.[2] In Section 3, I suggest a principled distinction between the *lexico-conceptual* organization of meaning and its *referential* use. In any such use, lexical concepts, retrieved from semantic memory, enter units of grammatical organization, which I identify here as the three 'phases' of a derivation of recent Minimalist theory (Chomsky, 2001, 2008): in essence, a nominal, verbal and clausal phase. With each of these correlate distinct possibilities of reference, none of which appear available non-linguistically or lexically. Grammar, however, is not commonly regarded as governing the forms of reference, which is instead taken to be a *semantic* notion. In Section 4, therefore, I articulate and defend a conceptual shift with regard to the cognitive role of grammar in normal cognition. A standard view maintains that language is merely a conventional way of *expressing* thought or meaning, rather than a way of actually *organizing* or *structuring* (a particular mode of) thought. In Frege's classical case, a 'proposition' does not even depend for its existence or structure on the existence of minds (or language). In Fodor's (2001) framework, the true locus of semantics is said to be 'thought', not 'language'. In formal semantics, a proposition is standardly modeled a

[2] See e.g. de Hoop and Malchukov (2008) for an alternative approach based on Optimality Theory, which is not discussed here for reasons of space.

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set of possible worlds, and again there is no reason why such sets should depend on language, or grammar. Strikingly, even in such a framework as Davidson (2004), where propositional and conceptual thought is said to depend for its existence on language, it is not the grammatical organization of language that accounts for the constitutive role of language in human thought. The view is even more widespread in psychology.[3] Against this consensus, I defend, in Section 4, the 'Un-Cartesian' alternative of Hinzen and Sheehan (2013), which is contrasted there with the 'Cartesian linguistics' of Chomsky (1966) and Arnauld and Lancelot (1660): that grammatical (in addition to lexical) organization in language makes a fundamental difference to how meaning itself is organized and cognized: meaning wasn't already all there, before grammar came along and 'expressed' it. The very existence of *some* kinds of meaning depends on grammatical forms of organization – the grammaticalization of the hominin brain – and it is absent otherwise. This view is precisely challenged by evidence that apparent core principles of grammar such as the Case filter do simply not *seem* to have an independent cognitive or semantic rationale. It would be enhanced, on the other hand, if either Case was uninterpretable but played no role in narrow syntax (Marantz, 1991; McFadden, 2004; Landau, 2006; Sigurðsson, 2008, 2012), or else it is interpretable, but it also regulates aspects of (grammatical) meaning. I argue for the latter option in the remaining Sections: against the current Agree-based conception of the Case-filter in Section 5, and for a re-analysis of PRO in terms of a 'hierarchy' of referentiality in Section 6.

2. The apparent irrationality of Case

The 'Case Filter' (Chomsky, 1981, following a famous suggestion of J.R. Vergnaud's in 1977) is one of the early significant results of the mature GB framework:

(5) The Case Filter: *NP if NP has phonetic content and has no Case (Chomsky, 1981:49)

That lexically overt NPs (NPs other than PRO or the traces of movement) need Case assigned to them was a powerful – even if puzzling – generalization making sense of the overt distribution of such NPs, i.e. the positions in which we see them appearing or banned. According to early Case theory, 'objective' Case (ACC) is assigned by lexical heads V and P, while NOM is assigned by (finite) Tense (T). This, with (5), explains distributional facts like why subjects of non-finite clauses are illicit (6a,b), except when a preposition (P) is present (7a,b):

(6) a. John decided [(*Bill/*him) to leave]
b. (*Bill) to win would be great
(7) a. John decided [for Bill/him to leave]
b. For Bill/him to win would be great.

In (8), below, the preposition is not required. This, too, follows, if *Bill*, in these cases, does receive Case, but gets it from across its clause boundary, namely the word *believe*, which takes *Bill* as its normal object (ECM: 'Exceptional Case Marking'):

(8) John believed [Bill/him to be a genius]

As this account correctly predicts, 'Bill'/'him' loses its objective Case when 'believes' is passivized, as in (9), where it shows up with a Nominative after movement, which leaves a trace, *t*:

(9) Bill/he was believed [*t* to be a genius].

A range of other facts now comes under the purview of the Case Filter. Just as 'Bill/he' moves in the passive construction in (10), 'the show' moves 'to receive Case' in the raising construction (11), 'the man' moves in the unaccusative construction in (12), and (13) is ungrammatical ('Mary' fails to receive Case and cannot move), while (14) is grammatical ('Mary' can move):

(10) The show was found [*t* cancelled]
(11) The show seems [*t* to be cancelled]
(12) The man arrived *t*.
(13) *It is likely [Mary to solve the problem]
(14) Mary is likely to solve the problem.

Semantic considerations play no role in this theory. This, too, follows, if a passive construction like (9) and its active equivalent share a 'Deep Structure' and meaning is preserved under transformations. If so, Case (or movement for Case

[3] Consider e.g. Christiansen and Chater (2008:501): 'A standard assumption is that thought is largely prior to, and independent of, linguistic communication. Accordingly, fundamental properties of language, such as compositionality, function-argument structure, quantification, aspect, and modality, may arise from the structure of the thoughts language is required to express'. It is striking that the properties of language listed are clearly aspects of language depending on its grammatical organization (though they can of course be reformulated in a logical vocabulary), and they can barely be investigated in language-independent terms. Of course, we need to distinguish language from *speech*, a confusion that often underlies the intuition that thought must be distinct from language. Language is a system, externalized in speech, in which meaning and sound are organized in a partially species-specific way. The authors' idea that 'language adapted to the brain' without the brain changing first, is put into question by the linguistic specificity of the brain that uniquely processes language (see Clowry, 2014, for review).

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reasons), should not affect meaning, and the intuition is that this is exactly right: there is no semantic reason for the movement that we see in e.g. (9) or (10).

Problems with the Case filter in its original form nonetheless began to accrue very soon, including apparent redundancies with principles of grammar such as the EPP ('Extended Projection Principle'), which seemed to account for 'Case-driven' movements independently. The filter was also soon extended to NPs in argument positions with no 'phonetic content', such as the non-overt subjects of non-finite clauses ('controlled PRO'), the traces of (NP-) movement, some clauses, and even expletive subjects (Chomsky, 1981). If all of these arguments need to pass the Case Filter, it needs a new rationale outside of morpho-phonology, which, by and large, was found in thematic roles, after Aoun (1979) speculated that Case assignment is required to make an NP 'visible' to theta-role assignment. This, the idea was, will sometimes require their movement to pick up a particular theta-role, leading to mismatches between particular Cases and theta-roles:

(15) **He** loved him — NOM = SUBJECT and **Agent**
(16) **He** arrived — NOM = SUBJECT and **Theme**
(17) **He** was kicked by John — NOM = SUBJECT and **Patient**
(18) John kicked **him** — ACC = OBJECT and **Patient**
(19) I believe [**him** to have killed her] — ACC = SUBJECT and **Agent**

This proposal made Case *indirectly* meaningful, via thematic roles, even if it doesn't add anything to meaning itself. Yet it is conceptually unclear why theta-role assignment should depend on Case. Empirically, moreover, clausal arguments as in (20) and (21) – which, like PRO, do carry theta-roles – do not seem to require Case, unlike the nominal one in (22):

(20) It was proved **[that Mary is a genius]**
(21) Jack's attempt **[PRO to finish on time]**
(22) *It was proved **[the theorem]**

Expletives illustrate the opposite problem: while no obvious candidates for theta-role assignment, they arguably require Case, being ruled out from precisely the kind of positions where the Case filter rules out overt lexical nominals, as a comparison of (23–25) with (26)–(28) suggests:

(23) *Susan tried [**it** to rain]
(24) *It is likely [**it** to rain]
(25) *My belief [**it** to be raining]
(26) *Susan tried [**Mary** to win the race]
(27) *It is likely [**Mary** to solve the problem]
(28) *My belief [**Mary** to be a genius]

The suggestion that Case can be rationalized via thematic roles was thus abandoned (cf. Lasnik, 2008), and it has not been resuscitated in the current Minimalist framework (Chomsky, 2000a, 2001). There the theory of syntax is based on the operation Merge and the relation Agree, the former argued to be a condition *sine qua non* in any combinatorial system, while the latter appears required empirically. Chomsky (2000a) formalizes Agreement as a process of 'valuation': features on a head (e.g. '3rd Person', 3P) enter the derivation 'unvalued' and need to be 'valued' within the units of derivation identified as 'phases', which we here assume are headed by *v*, C, and possibly D. At their respective boundaries ('edges'), the derivation is handed over to the semantic component. The head of the phase in question (say, *v*) therefore becomes a 'Probe', which seeks a valuing feature on a 'Goal' (say, the DP): Agree is a *Probe-Goal relationship* in which a feature [F] specified on a lexical item is 'matched':

$[v_{[F]} \ldots \quad [DP_{[F]}]]$
PROBE → GOAL

Case features are now like any other features that need to be valued, though they remain the most paradigmatically 'uninterpretable' ones. The relevant Probes for it are T (as a descendant of I) and *v*, for NOM and ACC, respectively. As any derivation still containing uninterpretable features needs to eliminate (or 'value') these before reaching the interface at phase boundaries, Agree for the relevant feature has to be triggered prior to this point, motivating movements that we observe. Case checking and Agreement are thus on a par, and the status of Case Theory reduces to a feature-matching requirement. Again, Case features are at best indirectly rational. Chomsky conjectures that they serve to render relevant goals 'active' for purposes of Agree, when other uninterpretable features have to be deleted. But since the purpose of Agree is to eliminate uninterpretable features, Case lacks an independent rationale itself (its rationale is to eliminate what has no rationale). Moreover, the movements that the Case filter aimed to account for now seem already taken care of by φ-feature (Person, Number, Gender) Agreement. As Chomsky (2000a:127) himself notes:

> 'agreement (hence movement) is driven by uninterpretable features of the probe, which must be deleted for legibility... With this shift in perspective, structural Case is demoted in significance. The Case Filter still functions indirectly in the manner of Vergnaud's original proposal, to determine the distribution of noun phrases. But what matters primarily are the probes, including φ-features of T, v. That reverses much of the recent history of inquiry into these topics and also

brings out more clearly the question of why Case exists at all. The question arises still more sharply if matching is just identity, so that Case can never be attracted; operations are not induced by Case-checking requirements.'

Movement in short is not 'for Case reasons', after all, but for matching other features on Probes, through relevant Goals. Case and φ-feature agreement are two sides of the same coin, deleted in a single application of Agree (Pesetsky and Torrego, 2001, 2004; Müller, 2009). Crucially, now, there are no 'Case-positions'. Rather, DP-licensing is simply governed by the two major Probes, *v* and T, whose feature specifications require matching with those of a suitable local DP in their respective domains.

While this reinstates the puzzle that the existence of Case has posed since GB times (why should Agreement depend on Case?), the shedding of 'Case-positions' in syntax is arguably an advance. For 'Vergnaud's now very familiar basic idea', as summarized by Lasnik (2008:18), was that: 'even languages like English with very little case morphology pattern with richly inflected languages in providing characteristic positions in which NPs with particular cases occur'. But much research on precisely such languages, such as Icelandic, *broke* the correlation between the morphological Case marking that we see on the surface of languages and the 'characteristic positions' in question. In particular, Sigurðsson (2008:410) argues that 'Icelandic PRO is assigned structural or quirky case in the same fashion as overt subject NPs in finite clauses' (though more exceptionally, it can be 'overwritten' by the case of the controller of PRO: 'Case transmission'; pp. 414–416), which means that PRO genuinely has its own Case. More generally, 'case has no bearing on the distribution and licensing of arguments, whether overt or silent, that is, it is syntactically inert' (p. 430; see also Landau, 2006). In short, syntax does not operate with Case features such as 'ACC', and argument-licensing is unrelated to Case features, which are a matter of morphological Agreement.

Support for this perspective comes from the fact that any single individual morphological Case-marker can express a large number of underlying syntactic relations or dependencies, suggesting that such marking reflects the externalization of narrow syntax ('I-language') in a sensory-motor channel, rather than deep principles of grammar.[4] In turn, different Case-markers can express the exact same syntactic relation, again suggesting that we are dealing with a primarily morphological phenomenon:

(29) a. Hún kastaði **steininum**/*__steininn__. ICELANDIC
she threw stone.the.DAT/stone.the.ACC
b. Sie hat den **Stein**/*__dem Stein__ geworfen. GERMAN
she has the.ACC stone/the.DAT stone thrown
'She threw the stone.'

Cross-linguistically, Case-assignment proves to be sensitive to panoply of factors such as lexical idiosyncrasies, the DP in question's thematic role, sociolinguistic factors, the syntactic position/dependencies of said DP, and the presence and status of other DPs in its local domain (cf. Marantz, 1991; Baker, 2010). Case inventories themselves can range from 2 (Kabardian: NOM/ACC) to 3 (Modern Greek: NOM/ACC/GEN), 4 (Ancient Greek: NOM/ACC/GEN/DAT), 5 (Latin and Old High German), 6 (Turkish and Slavic languages), or 7 (Central Armenian) (Calabrese, 1996:86). In 100 of 261 languages in total studied by Iggesen (2008), Case-marking goes missing altogether.

This veritable 'Case-chaos' (Sigurðsson, 2012) makes it difficult to motivate the assumption that Case features are operative as primitives in universal syntax. We will concur with the rejection of this assumption in Section 3. This rejection will not entail, however, that morphological Case *features*, where they exist in a language, do not reflect underlying *relations* deserving the name 'Case'.

3. Case and the meaning of grammar

It is sensible to expect that the meaning of grammar, if it exists, has to be sought in its *relational* structure, not in features specified and interpreted on *words*. Grammar is about relations *between* words, not words, and a principled account of grammar as a domain of inquiry will naturally tell what kind of grammatical relations exist in this particular domain, and which interpretive effect each of them has. Neither Merge nor Agree – the basic operations of Minimalist syntax – seem to provide such an account: not the former, because Merge is a maximally generic combinatorial operation that says nothing specifically about grammar (it could be used to formalize combinatoriality in DNA); not the latter, because 'Agreement' is as such a descriptive term for whatever relations hold between two matching features. There will, as it were, only be one single, generic grammatical relation, Agree, viewed as a cover term for whatever grammatical relations we will find. Linguistic specificity will then come from lexical feature specifications, which is a priori not where we expect grammar to come from. We will specifically assume that the basic function of a lexicon is to codify, through lexical roots, a form of 'semantic memory' in the sense of Binder and Desai (2011) (Tulving, 1972), i.e. a repository of general and impersonal world knowledge that we have of things and people, feeding into the use of language and encoded in such lexical roots as DOG or MAN, which serve us to *classify* an experienced human world. Lexical knowledge is encoded in, say, MAN, through feature specifications, like

[4] Thus, ACC in Icelandic can mark: 'some subjects; most direct indirect ('first') objects (…); regular ECM subjects; most ECM predicative NPs; subjects in some experiencer ECM complements; some raised NPs; complements of certain prepositions; some dislocated NPs; certain adverbial NPs' objects' (Sigurðsson, 2012:199).

'TWO-LEGGED', 'HAIRY', 'MALE', etc., which I will take it are ultimately based on perception and sensory-motor processing, although they abstract from sensory-motor experience to various degrees and involve supra-modal elements as well.[5]

If grammar is meaningless, and the primary function of a lexicon is classification, we do not expect that all meaning can be 'composed' from lexical meanings. Some meaning generated in language must have another, independent source. It is independently clear that the organization of meaning at a lexical level is fundamentally different from its organization at a grammatical level as configured on occasions of language use. Thus, for all its internal feature specifications, a word like 'man' can never refer to a particular man or distinguish between acts of reference to all men, some men, this man as opposed to that, man-meat, manhood, mankind, or men in general. There are no subjects and predicates, no modifiers and no arguments, no definiteness, no assertions and no propositions, no reference to specific objects or events placed in time, space and discourse, nor even Aspect (as distinct from Aktionsart), in the lexicon. Potentially, there are not even parts of speech, which may solely exist where lexical items are processed in a grammatical context (cf. Vigliocco et al., 2011). Referentiality, crucially, should not be confused with nominality, when even the latter entails no referential uses, and even nominality may not be strictly lexical. If 'man' is a lexical item, 'the man' is not, the former cannot be referential, and the latter can be, then reference falls on the grammatical side, and it is a grammatical concept.[6]

The point is more obvious in the case of verb-headed structures, where denotations such as propositions, facts, and truth values arise that no lexical item can as such encode. The temptation that referentiality in the nominal case comes from 'the' and is in this sense still lexical should also be resisted. Thus, 'the' has no substantive lexical content, and must co-occur with a lexical restriction encoded through the NP in order to support referential acts; secondly, even 'the man' as a phrase will be referential only if this phrase stands in the right grammatical relations (as in 'the man entered', but not in 'I hope to be the man' [e.g., in a play] or in 'I am always the man'); thirdly, referentiality can arise in the absence of 'the', as in 'Man comes from Africa' or 'Gold is yellow', where common nouns become (kind-) referential (arguably through N-to-D movement, similarly to the case of proper names used referentially: see Longobardi, 1994, 2005; Hinzen, 2007; Sheehan and Hinzen, 2011, for evidence and discussion); finally, other language types lack 'the', while arguably instantiating the same forms of reference governed by essentially the same grammatical principles (cf. Cheng and Sybesma, 1999, on Chinese; Furuya, 2012, for Japanese).

If grammar is meaningful, and in a different sense of 'meaning' than we find in the lexicon, then grammatical relations matter as an independent input to semantic interpretation, in a way that Agree or Merge, as abstractions from such meaningful relations, do not. If the grammatical relations are interpretable, then nothing needs to be 'eliminated' in the grammatical process – though what is grammatical would need to be interpreted relationally, and what is lexical would need to be interpreted non-relationally. The Minimalist rationale for Case-features may now disappear: it was that Case-features render a Goal 'active' for it to agree with a Probe, upon which an uninterpretable feature is eliminated that would cause offence at the interface. This account reduces the presence of grammatical *relations* (as encoded through Agree) to the presence of (potentially 'abstract') *features*. Unless we perform this ontological reduction, the relations in question do not entail the existence of such features and they are consistent with the *absence* of individual Case features such as NOM or ACC in narrow syntax, exactly as Sigurðsson (2008, 2012) proposes (they entail no relation of Agreement either). Moreover, the relations themselves may be interpretable, even where the features are not.

Now, grammatical relations clearly *do* carry meanings that no features specified and interpreted on words *can* carry, no matter whether they are specified on verbs, on nouns, on both, or on neither. I will illustrate with Person first, and then turn to Case. A morphological *feature* such as '1st Person' (1P) in the inflection of the finite verb is commonly taken to be 'uninterpretable' on this particular head, since verbs lexically denote actions, which are no persons. It appears interpretable, on the other hand, on the agreeing nominal. A NOM-feature found on both a verb and a noun is said to be uninterpretable in the same sense, on both the verb and the noun. But none of this, in either case, says anything about the (un-) interpretability of the *relation* between the verb and the noun that is thus marked. Suppose I utter (30):

(30) Ich sehe GERMAN
I-1P see-1P
'I see'

(30) expresses, for a certain event of seeing, that its agent (the person seeing) is identical to the agent of a certain speech event (the person speaking), as and when this latter event takes place. (31) expresses no such thing, even if I am again the speaker:

(31) The speaker sees.

[5] Such specifications can explain why we can tell the 'odd-one-out' in the sequence CAR, BICYCLE, TAXI, MAN, or why, in any human lexicon, hierarchical relations of homonymy and hyperonomy form, such as MAN<MAMMAL<ANIMAL, which we do not find, or not in the same way, in grammar.

[6] This point extends to referential uses of proper names, which crucially is nothing lexical either: even in the case of a proper name like 'Mary', no object (a particular person called Mary) is denoted unless a speaker is specified and indeed a speech act; even if these are specified, no object will be denoted if the grammar is different, as in *Marys are always good girls*, or *Mary is not the only Mary in my class*.

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Here, 'the speaker' can refer to any speaker, not necessarily me. The difference is thus one in reference, and more specifically in grammatical Person: 'ich' is 1st Person, 'the speaker' is 3rd Person. So the Person feature on the nominal is interpretable, but its interpretation is relational, and as such not local to the noun: '1P' is interpreted as a particular *relation* holding between (the participants of) an event of seeing (configured, we may assume, in *v*P) and (the participants of) a particular speech act (configured, we assume, in CP, where such features as assertoric force or propositionality are grammatically encoded and reference is made to the speech context: cf. Sigurðsson, 2004). In sum, as a feature specified on the verb, '1P' is uninterpretable; but as a relation, it is not; as a feature specified on the noun, it is interpretable, but only relationally: it crucially captures an aspect of grammatical meaning, which cannot be determined on the basis of the noun alone.

If so, the contention that φ-features as specified on verbs are 'uninterpretable' and have to be 'eliminated' before the semantic interface is reached, rests on a conceptual mistake. The contention will hold true only if the meaning of relations is ignored (grammar is meaningless), relations are reduced to features, and all meaning is non-relational – effectively lexical, interpreted through features on words. If relations rather than features are interpreted, then movement does not happen to 'eliminate' any features that shouldn't be there, but it is an aspect of how such relations *arise* (or are configured), with much variance thereafter on how (or whether) such relations are morphologically signaled. The relations, once established grammatically, are interpretable in ways that no feature is, no matter whether it is specified on the noun or on the verb: words *never* carry relational meaning in the sense in which '1P' is interpreted relationally in our example above. Thus, the word *speaker* carries lexical content, and its lexical content indeed relates to events of speech. But it cannot as such express that some particular event of seeing has an agent identical to a speaker involved in an act of speech. Such meaning only arises in grammar, and only in particular configurations and on particular occasions of use.

There appears to be no inherent connection, however, between this relational meaning of Person (or other φ-features such as Number), and the notion of 'argument': a word marked '1P', in particular, need not be an argument or be referential.[7] Here is where Case comes in. The key to our answer to the distinctive grammatical meaning of Case lies in the *formal-ontological distinctions* that systematically arise as and when words become grammatical arguments that as such enter event- and proposition-denoting phrases (more precisely, the derivational 'phases' of Chomsky, 2001, mentioned earlier). Recall that forms of reference as we uniquely find them in our species (different from functional reference in animals and from mental representation in a generic sense), co-vary with grammar and not with any other known system (e.g., intentions or beliefs).[8] But any act of reference involving a word also always involves a *formal ontology*: we always refer to things that are formally objects, events, propositions, etc. These are 'formal' distinctions in the sense that they are not distinct in the way that water and beer are, or men and women; and 'ontological', because they concern the structure of reality as referred to in language. They co-vary with grammar, i.e. specific forms of grammatical organization and complexity, insofar as, e.g., no clauses are *object*-referential in the way that proper names are; no nominals can assert *propositions* or denote truth values; verb phrases or non-finite clauses can denote *events*, but not full propositions with truth values. Within these broad formal-ontological cuts, finer distinctions are possible, which *again* co-vary with grammar: thus, objects can be abstracta, substances/masses or individuals; events can be causatives which include other events/states as their proper parts; all full propositions will include events. The grammar of mass reference, largely based on bare nouns, is less complex than that of individual reference; the grammar of events is more complex than that of states; and the grammar of full propositions put forward in discourse as true or false is the maximally complex form of grammatical organization, including all other forms (Hinzen and Uriagereka, 2006). The objects of reference thus are *hierarchically ordered* in terms of part-whole relations, mirrored in their inherent respective grammatical and formal complexities: propositions include events, which include states, which include objects, which include substances.

Reference in grammatical arguments not only comes with a formal ontology, it also comes with a degree of *referential strength* in each of the ontological domains. Thus in *I like men*, the DP argument [[$_{DP}$ D [$_{NP}$ men] is syntactically an argument (DP), but the edge of this nominal phase – comprising the functional projection of the nominal at the left edge of the nominal phase – is lexically empty: in particular, there is no overt determiner. Because of this, reference is not to particular men, and it is instead only fixed predicatively, through the descriptive content of the word *men*: if I like men, then, for any *x*, as long as it is a man, I like it. For reference to an *amount of* man, the structure needs to reduce even further. In particular, even Number marking must disappear: cf. *I had man* (cf. *I had beef*). For individual-specific reference, by contrast, the determiner has to become overt (cf. *I had/like a man*); for definiteness, the edge has to be filled by a determiner that is 'strong' (e.g. *the*). In the former, indefinite cases, the nominal still lends itself easily to predicative uses; in the latter, these now become more marked. For deictic reference to individuals, a deictic morpheme has to be added to the strong determiner, as in *this*/*that man*, and for the first time the act of reference can now succeed *without* the NP with its descriptive lexical content complementing the determiner (cf. *I like that/him*). Predicative uses are now very marked or impossible. With *personal* deictics in the singular, finally, the NP-restriction not only *can*, but *must* be absent: **I*/*you man*. Kind-reference, we assume (Longobardi, 2005), requires N-to-D movement, exactly as referential uses of proper names.

[7] Consider, e.g., the sentence *I am me*, where the first 1P is in an argument position and the second (arguably) in a predicative one.

[8] For a striking illustration (G. Longobardi, p.c.), note that in the following two examples, the relevant noun phrases are lexically but not grammatically identical, and only the first has the grammar that triggers a rigid reading:

(i) **Napoleon the first** was born in Ajaccio.

(ii) **The first Napoleon** (counted in the Bonaparte dynasty) was born in Ajaccio.

Plainly, these facts cannot be explained by substituting different lexical semantic values for the same lexical item 'Napoleon' when it refers to a property (ii) or a man (i). No referential intentions, for example, co-vary with the above distinction, and semantically exactly the same person is denoted.

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There is a *progression*, therefore, not merely from one kind of formal object to another, but towards increased referential strength *within* the ontology of the first phase. We are looking at forms of reference ranging from *predicative* ones fully depending on the descriptive content of the nominal in the interior of the nominal phase, to *weakly* referential (non-specific, mass-quantificational), to indefinite *specific*, to *definite*-specific, and finally to *deictic* and *personal* ones, where the NP-complement of the determiner, with its descriptive content, is now not grammatically required any more, and eventually required to be absent. Grammatical complexity *increases* along this scale, again illustrating a correlation between grammar and reference: that is, starting from an empty determiner position, i.e. zero, we obtain this progression in how an argument can be referentially licensed to a higher head (brackets indicate optional deletion, and starred brackets obligatory presence):

(32) *(NP) < *(*the*) *(NP) < *(this) (NP) < *I/you (*NP).

A similar progression can be observed in the domain of events (verbal Aspect), where verb phrases (VPs) denoting states (*Bill is dead*) are grammatically less complex than VPs denoting events that contain the states as temporal parts and an additional argument position (*John killed Bill*); and in the clausal phase, where Finiteness and Person need to be fully specified in order for a truth value to be denoted in discourse, and where, in any such case, there will then necessarily also be a proposition (which is what is true or false) and a (as such non-finite) event embedded in the latter. For example, in *Bill enlightened John*, there is the event of *John enlightened* embedded, which is non-finite, as made more visible in the equivalent *Bill made John enlightened*. Again we are looking at both a referential *and* a grammatical progression, from predicative DPs to referential ones in the nominal case, states to events in the verbal case, and non-finite to finite ones in the clausal one. Within the nominal domain, reference is maximally only to *objects* (or persons). But this formal ontology of reference necessarily changes as the nominal enters verb phrases, and then clauses.

Generating the formal ontology of reference is what the grammatical process is all about: nothing other than that ever happens in grammar, and it never (to the full extent) happens *outside* of grammar.[9] The point now is that this generation appears to depend on relations interpreted morphologically as Cases. In the absence of argument-positions, which do not exist in Minimalist grammar, Case is the only thing that *yields* argument relations: thematic roles, in particular, exist in the adjunct system, and require no arguments. It is unclear, too, how 'Agreement' between features could yield such relations. Predicativity, argumenthood, and referentiality are not lexical features: no predicate, referential expression or argument exists in the lexicon.[10] Like 'referential' or 'predicative', 'argument' is a theoretical term denoting how a given constituent – noun or clause – grammatically *functions*, which it can only do *relationally* (as opposed to intrinsically), and only at the *stage* in the derivation where the relation is established. E.g., lexically we do not know whether a given lexical proper name will grammatically function predicatively or referentially, and it can perform both functions in the very same clause: cf. *Mary is not the only Mary in my class*. We only know whether a given lexical item functions referentially or predicatively by looking at its grammaticalization, and the question of whether proper names are predicates or referential is ill formed.[11] It wouldn't make sense to class a word like 'Mary' lexically through a feature like REF (for 'referential'); or to specify a given nominal as 'ARG' (for 'argument'); or to class it as 'ACC' and define a derivation through the need to 'check' such a feature.

Consider now some specific argument-relations mirrored morphologically in Case features. I will follow standard assumptions in that all arguments are introduced by dedicated functional heads: direct objects in the functional edge of the lexical verb, i.e. *v*, normal agentive or active subjects by an active 'Voice' head, interpreted causatively, and indirect objects, by an applicative head 'Appl' (Kratzer, 1996; Pylkkänen, 2008; Chomsky, 2001):

(33) [Voice...NP_3...[Appl...NP_2 ...[*v*-V... NP_1]]]

A formal ontology is generated *alongside* such licensing. Thus, licensing NP_1 in relation to *v* gives rise to an *event* or *state*. Voice gives rise to a more complex event, of which the previous event or state now becomes a part (Hinzen, 2012). This process is interpreted morphologically in terms of Case-marking, as (34) illustrates, where different kinds of Voice-*v* heads generate different Case-marking patterns in the resulting full sentences, correlating with a difference in the formal ontology of meaning:

(34) a. We [$Voice_{ACT}$-*v* killed **him$_{ACC}$**]
b. **He$_{NOM}$** [$Voice_{PAS}$-*v* was killed].
c. **He$_{NOM}$** [$Voice_{UNACC}$-*v* died]

[9] Formal semantic theories (model-theoretic semantics), while formalizing the formal ontologies in question and including various such entities as propositions or objects in their respective ontologies, do not provide for an alternative route, or explanation, for how such a formal ontology *arises*. See further Section 4.

[10] Words can be compounds, too, and they can be internally complex, but none can encode a predication, or make an assertion (cf. DiSciullo, 2005).

[11] The same applies to common nouns, like 'wine', which can function quantificationally, as a predicate to a quantificational operator interpreting an empty nominal edge, as in *I had wine*, where *wine* is grammatically [$_{DP}$ 0 [$_{NP}$ wine] and interpreted as 'some (amount of) wine'; but which can also function referentially as in *I like wine*, which can only mean that I like wine in general, with *wine* function as referring to a kind and the grammar [$_{DP}$ wine [$_{NP}$ *t*] (Longobardi, 1994; 2005; Sheehan and Hinzen, 2011). Even then, [$_{DP}$ wine [$_{NP}$ *t*] functions as a predicate when seen in relation to the higher head *v* in which the nominal embeds, namely a predicate identifying descriptively the event denoted by *v*. Thus in *I like wine*, 'like' denotes a certain event. Which event? The event of liking *wine*.

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Case morphology therefore *reads* argument relations. These are non-local dependencies. They arise when one phasal unit (DP) crosses into another phase, *v* or C, becoming an argument. This happens irrespective of thematic roles, which are identical in the case of 'him/he' in (a)–(b), where, instead, the NOM/ACC difference on this argument tracks different *cross-phasal* relations into which this nominal enters, with interpretive consequences: in (a), the relation expressed by ACC is that between the internal argument and the verb, which together yield only a grammatical *predicate* but crucially no truth value ('killed him' is not true or false). By contrast, in (b), NOM expresses the relation between an external argument and the (finite) verb, which *does* correspond to a truth value and a full propositional claim: a formal ontology is generated, which has nothing to do with thematic roles, and for which Person does not account (though Person-relations are always involved in a propositional claim). Movements 'for Case reasons' therefore are interpretable. In (c), NOM also expresses cross-phasal dependencies, but the fine structure of the formal ontology is different, with no transitivity/agentivity implied.

NOM and ACC, then, are among the morphological features that interpret grammatical relations arising as cross-phasal dependencies between the nominal, on the one hand, and *v* and C, respectively, on the other, arise. In all three cases above, the grammatical relations marked by these Cases are both interpretable and interpreted, and they mean that a DP has undergone relational licensing with respect to a higher head with a different formal ontology: either the first phase (*v*) into which nominals enter (the edge of the verb), or C-T, the edge of the clause. Such licensing is therefore not merely formal, though we can of course describe it as such, but movement into the *v* and C-domains has to do with *reference* acquiring its formal ontology, and it has nothing to do with eliminating uninterpretable features. As the phasal boundaries are crossed, the formal ontology of the denotation of the expression generated changes, first giving rise first to an event denotation complete with a participant and exhibiting Aspect, and then to a proposition with a truth value. In this way, the progression from D (the functional edge of the nominal), to *v*, and to C, is a phase-by-phase progression, from objects to events to propositions (or propositionally complete speech acts), which is the end and outer limit of the grammatical process. Relations marked by the Cases thus span the universe of grammatical meaning.

It follows that if, as Chomsky (2001) maintains, the phases are Case-domains – domains within which they have to be 'checked', in his terms – Case is rationalized, and the task we have set ourselves here is accomplished: Case will be interpretable because phases are Case-domains, and phases are interpretable in terms of the formal ontology of semantics as arising grammatically (and never lexically). The phasal dynamics, again then, is not a purely formal process of deleting uninterpretable features. Moreover, there is no entailment, then, from the existence of grammatical relations visible as morphological Cases, to the idea that Cases are (possibly abstract) *features* that figure as such in narrow syntax (whether 'abstract' or not). Case relations will only reduce to (matching relations between) lexical features, if we endorse such a reductive view. There is therefore no such requirement either as a one-to-one mapping between specific 'abstract' Cases in syntax and their morphological correlates. In fact, the 'Case-chaos' noted by Sigurðsson (2012) is what we *expect*: grammar is a purely *relational* system. The relations as such can obtain whether or not they have any morphological reflex. Where they have one, we expect that such a relation can be marked either on the noun or the verb, or both, in language-specific and variable ways. If the relations are marked, moreover, it is the relations, not the features, which are interpreted. Nothing is 'uninterpretable' in syntax, nothing needs to 'checked' before the 'interface'. Everything is as it should be, no 'cleansing' of syntax is required.

Person cannot take over the role of a Case such as NOM: a 'language' could have arguments but no Person system,[12] or have a system of Person distinctions but only adjunct (as distinct from argument) and thematic dependencies.[13] A language of the latter type will not encode any propositional truths, however, on the assumption that adjunction encodes mere predicate conjunction: there would be no subjects and no predications (in the grammatical sense of predication that correlates with subjects and truth). If Case is a reflection of the licensing of arguments in actual grammar, Case therefore is as rational as it could be. A world without Case, and hence arguments, would be a different world indeed, though it could well exhibit thematic relations, Person, adjunction, coordination, and iteration. It might also not exhibit the *mereological* structure that, we have noted, arises in the process of derivation by phase. In this process, there is not merely a linear sequence in which *first* an object can be denoted in the grammatical process (edge of N), *then* an event (edge of *v*), and *then* a proposition (edge of C). Rather, the process is inherently such that, when an event, say, is configured, a nominal denotation (object) is necessarily (i) *already* configured, and (ii) necessarily interpreted as a *participant* in the event in question, i.e. as a *part*.[14] Not *two* referents are separately denoted, an event-type referent and an object-type referent, but only *one*, which is an event *of which* the object is a part. No grammatical derivation ever generates more than a *single* referent. Thus the exact same process repeats when one state or (small) event becomes a part of another, as with transitive *v*: there will not be two events then, but one, of which the smaller one is necessarily a part.[15] The process repeats again when a propositional representation is generated: no proposition exists without an event being generated first internal to the verbal projection, and without it becoming a part of the proposition, in the same sense of 'part'. That sense of 'part' is not available in the adjunct system, or through the thematic relations available in the latter.

This defense of the rationality of Case depends on (i) distinguishing the interpretability of grammatical relations from that of features; (ii) the recognition that no formal ontology in the referential use of expressions as arguments arises lexically, (iii)

[12] Conceivably, the language of high-functioning autism-spectrum disorder approximates such a language.

[13] In Pietroski's (2005) minimal semantics for natural language, argument dependencies *are* reconstructed from adjunct dependencies. There appears to be no reason why natural language thus reconstructed should not exhibit Person.

[14] In this sense, phases (or their heads) do not need to 'select' other phases.

[15] As was pointed out in Fodor (1970). Any contemporary defense of lexical decomposition arguably needs to be consistent with this atomicity requirement (cf. Hinzen, 2012).

the fact that Case features in morphology interpret different argument-relations into which referential expressions enter cyclically (with cycles = phases), and finally (iv), that such argument-relations are interpretable in terms of the formal ontology of meaning and its inherent mereology. Case-features, like φ-features, are 'uninterpretable' only if we ignore the relational nature of grammar and its inherent meaning. There is grammatical meaning, too, it is relational, and hence words have their grammatical meanings only in relations to others, in other phases, and ultimately only in sentences. If so, their grammatical meanings cannot be predicted from their intrinsic meanings – the lexical meanings that are inherent to them – and grammar has an irreducible meaning of its own.

4. Meaning as non-grammatical

If semantics, on the other hand, is truly located only at the level of 'thought' (Fodor, 2001), then nothing in the above would make any sense. For in that case, there is language, yes, and it has grammar, but there is also thought, independent of language, and it is the true locus of semantics, which can now be formalized in some preferred logical-semantic formalism, to which Case is irrelevant. Thought in that sense, by definition, has a propositional semantics, and the kind of relations that I have argued arise *with* grammar, and the formal ontology involved, therefore exist at the level of thought formalized in such a system: relations of predication, for example, yielding truth values. So how *can* grammar be relevant to them? There is a metaphysical version of the same objection. Ultimately, the objection goes, meaning concerns the structure of *reality*: what we talk *about* in language. Surely, *how* we talk about it, and what relations we find in the *grammars* of human languages, does not speak to what the structure of the world out there is?

The basic counter-objection to the former claim is that logical formalization *presupposes* argument-relations in the sense above, i.e. the grammatical relations made visible morphologically by Cases. In *John sleeps*, say, a formal-semantic, compositional model might map 'John' to John, and 'sleeps', in virtue of its stipulated lexical semantic value, to a 'predicate', which then maps John as an *argument* to a *truth value*. But this is to *presuppose* the grammatical relations in question, and to misinterpret them as being determined lexically. Yet the emergence of grammatical meanings in the above sense poses a significant evolutionary *explanandum*.

The first symbolic objects found, documenting a form of symbolic reference, are not older than about 77,000 years (Henshilwood, 2006). Full modern language, which of course is symbolic, is thus not likely (much) older. The findings in question moreover are from Africa, where the 'cultural evolution' leading to an essentially modern human culture is very sparse initially and more consistently present only *after* the decisive development of such a culture in the European record around 40,000 years ago (d'Errico et al., 2009:34-5). The anatomical origins of our species go back about 190,000 years (Stringer, 2011). In the archaeological record of no other *hominin* do we find evidence of the same mode of thought, not to mention non-human primates today. Forms of pointing found in the latter, in particular, are arguably of a radically different type than in humans (Butterworth, 2003), as are all other forms of 'functional reference' in the animal context (see e.g. Fitch, 2010:187–194; and see Tomasello, 2008, on the 'language-trained' apes, where the absence of grammar *correlates* with the absence of the forms of reference in question, as predicted on the present account). Mental representation in a generic and non-linguistic sense (Gallistel, 1998), too, leaves a leap yet to be accounted for.

The transition from *Homo Heidelbergensis* to modern *Homo sapiens*, where we see language, then, is, not merely a transition to *language*, but a fundamental transition in our *cognitive phenotype* as well (Tattersall, 2008): it is a change in *thought*, or in what meanings we can grasp, rather than merely a change in an *expressive* capacity.[16] An appeal to a pre-linguistic mode of thought to explain the semantics we find expressed in human languages will thus only partially help: we need the *kind* of thought that uniquely goes with language, and that kind is, empirically, *inseparable* from language and never found without it. As things stand, language is our best bet for explaining this seismic change, especially if the apparent language-dependence of other explanatory theoretical constructs, such as 'theory of mind', *depend* on language in their fully developed forms (DeVilliers, 2007). But language exhibits grammatical organization. Therefore, it is at least a reasonable strategy to scrutinize the *grammatical relations* found in language for their correlation with the kinds of meanings that, so far, we have uniquely found only in modern humans, and universally in them, pathologies aside.

The counter-objection to the second line of objection is that there is no non-grammatical evidence for the existence of the formal ontology in question. We cannot go to the world, and observe its formal ontological structure, say by doing physical experiments or by analyzing perception. While perception might yield *some* structures that we also find in grammatical ways of referring to the world, it surely does not explain why we intentionally refer to the world, given that perception is non-voluntary and stimulus-controlled, unlike the use of words and concepts, and is found in all species, while intentional reference is only found in one. Nor does it explain structural forms of organization that are not perceptual in nature, like propositionality, modality, or Tense. Reference to the world using a nominal, like *Mary's smile*, as opposed to assertions with Aspect and a truth value, like *Mary smiles*, does not track an independently given distinction in the external environment, and both can be used in the exact same perceptual circumstance.

[16] Put differently, while the handicap of a Broca's agrammatical aphasic is conceivably simply the absence of a functional expressive tool, that of a chimpanzee is not merely the lack of such a tool. Indeed, given sign 'language' experiments with apes, it is now clear that an inability for motor control of speech production is *not* what prevents chimpanzees from learning language (Tomasello, 2008): they lack to the thoughts/meanings to be expressed.

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In sum, re-stating formal-ontological distinctions involved in reference at a level of non-linguistic and inaccessible 'thought', or perhaps at a level of metaphysical 'reality', yields no explanatory benefits. The new hypothesis that there are two kinds of meaning, one lexical and one grammatical, with no other system generating such meaning besides, should therefore be pursued. This also has an architectural consequence. The classical 'inverted T' model of generative grammar has regarded language as grounded in two independently given 'substances', sound and meaning. Indeed, arguably, whatever language is, it is (i) *articulated* in some sensory-motor channel, and (ii) it is *meaningful*. Therefore, there are minimally two 'interfaces' that the grammar must form with external systems: sensory-motor and semantic systems, respectively. The rationale of grammar is to *mediate* between these systems, and to *link* them, by generating complex expressions that systematically pair them. Consistent with this model, the analytic philosophy of language from Frege to Carnap to Quine has viewed grammar as an imperfect translation of logical form: a deficient tool for the *logical analysis* of thought or semantic content, viewed as an independently given system and as formalized in semantic theory (say, possible worlds semantics). Semantic content enters the grammatical system via words, and sentential meaning is accounted for on the basis of a composition of word meaning, through such semantic operations as function application and/or predicate composition (Heim and Kratzer, 1998). Grammar thus makes a contribution to meaning only insofar as it combines word meanings. In line with this basic contention of 'semantic compositionality', Minimalist syntax defines its object of study to be the 'computational system' of language, which combines atomic elements recursively into hierarchical structures, through the operation Merge, which takes two syntactic objects A and B and combines them in a set {A, B}. There is nothing inherently semantic about this process, unless the operations of compositional semantics are added to it. Described in purely formal terms, it leaves aspects of interpretation to performance systems on the other (non-linguistic) side of an 'interface', which the syntactic component of grammar is said to form with 'Conceptual-Intentional' (C-I) systems of 'thought' (Chomsky, 1995).

Again, however, whatever non-linguistic processes of thought we may wish to grant non-linguistic species, animal thought is *different* from the kind of thought that we find expressed in human language: language correlates with thought of an evolutionarily novel and unprecedented kind (Penn et al., 2008). The inverted T-model is questioned, if non-linguistic thought (of the relevant kind) arises *with* the grammatical system, and is not merely an external condition *imposed* on its evolution, constraining what it has to merely *express*. It so appears that there is a *mode* of thought, which we not only factually find universally expressed in language and only in language, but that correlates *intrinsically* with ways in which meaning is organized in language, and by grammar in particular. This conclusion is not consistent with the ontological independence of (this mode of) thought and of language, and with an 'interface' between them (Hinzen, 2009; Stroik and Putnam, 2013).

5. Against Case as an aspect of Agree

The proposal in Section 3 questions an inherent relation of Case ('abstract' or not) with the relation Agree (Chomsky, 2000a, 2001). We now summarize independent evidence claimed in the literature for the conclusion that Agreement is only indirectly related to Case. Whether abstract Case relations in our sense end up externally Case-marked on DP as ACC (dependent-marking) or the verbal head, as φ-feature agreement (head-marking) or both or neither appears to be a purely morphological matter with all possible combinations attested in the languages of the world. Bickel (2011) finds 'no evidence for any universal diachronic interaction between rich case (A[gent] ≠ P[atient]) and rich agreement', and that the distribution and development of 'case and agreement is subject to different processes'.[17] In Chomsky's (2000a, 2001) own system, there is a crucial asymmetry between φ-features found on verbal heads and those located on nominals. Thus, T/*v* heads can *lack* φ-features (and hence lose the ability to 'assign Case', in which case T/*v* is said to be 'defective'); hence there is a sense in which these φ-features are not a *necessary* property of verbal heads. Moreover, Preminger (2011) argues that Agreement is actually a *fallible* operation. Even where T/*v* bear φ-features, this simply means that Agreement must take place if possible. In the absence of any visible/active goal to agree with, the φ-features on T/*v* simply receive a default value.[18] Hence Case features in narrow syntax, as they are generally thought of, and Agreement, appear to be different phenomena: if something like the Case Filter holds, then the implication is that DPs must *always* form grammatical dependencies with some head in the verbal projection. Where no such dependency can be established, the derivation will crash, making Case the only feature which is a true 'derivational time-bomb'.

It is also now well documented that 'inactive' DPs with valued Case features can act as so-called defective interveners, entailing that Agree *can* take place even where a goal is, in Chomsky's technical sense, 'inactive', entailing that Agree does not in fact depend on Case. Thus, an experiencer contained in a prepositional phrase (*a Piero* in (35)) blocks raising of a nominal (*Gianni*) from its base position in the embedded clause because it intervenes in the Agree relation between matrix T (where *Gianni* moves) and embedded T (where it moves from) (cf. McGinnis, 1998; Hartman, 2011):

[17] E.g., Latin has both Case ('dependent-marking') and agreement morphology ('head-marking', in the sense of Nichols, 1986). Dyirbal has Case but no agreement morphology, Swahili has agreement morphology without Case and Mandarin has neither.

[18] Agreement may not take place even in constructions where it can or could take place, as Sigurðsson (1996) and Sigurðsson and Holmberg (2008) have argued.

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(35) Gianni T sembra (??a Piero) T fare il suo dovere ITALIAN
Gianni T seems.3SG to Piero T do.INF the his duty
Lit. 'Gianni doesn't seem to himself to do his duty.' (adapted from McGinnis, 1998:92)

(36) Jean semble (??à Marie) avoir du talent FRENCH
Jean seems.3SG to Marie have.INF some talent
Lit. 'Jean seems to Mary to have talent.'(McGinnis, 1998:90)

(37) a. Cholesterol is important (*to Mary) to avoid.
b. John was claimed (*to Bill) to have stolen the art.
c. The hurricane threatened (*me) to destroy my house. (Hartman, 2011)

This, combined with the above fact that T/*v*'s φ-features can receive a default value, suggests that a system with uninterpretable φ-features could actually function without 'abstract Case': the need to Agree does not rationalize the existence of Case, in conformity with our account. Recent evidence that the Case filter is to be 'parameterized' suggests the same conclusion (cf. Diercks, 2012, on Bantu languages). Halpert (2012) argues against this claim, but also that in Zulu, Case-licensing and φ-agreement have no syntactic overlap.

Attempts to eliminate the Case filter altogether from narrow syntax are also not entirely convincing yet. On one version of this view, Case becomes akin to all other 'uninterpretable features': Case assignment is allowed to fail. If so, Case features do not appear to be different from other syntactic features that are fallible in Preminger's (2011) above sense. But it is unclear, then, which grammatical relations give rise to a formal ontology in our sense above, which appears to be universal in language. It seems implausible to assume that the relevant argument licensing relations can vary parametrically (in anything other than externalization respects) giving rise to different kinds of formal ontologies, or that they are fallible. Marantz (1991), McFadden (2001, 2004) and Landau (2006) have all attempted to 'reduce' 'abstract' Case to morphological Case.[19] However, the EPP-principle invoked by Marantz to explain A-movement may be neither universal nor a primitive of grammar (Sigurðsson, 2012:193), and as Marantz acknowledges, there is still no explanation for the distribution of PRO in this attempt, leaving us with what Marantz calls 'the residue of structural Case'.[20] Our approach here has instead been to attribute an inherent content to abstract Case relations, in terms of the general meaning of grammar. If so, Case assignment should be sensitive in some systematic way to the referential properties of arguments. This prediction is discussed in the remainder.

6. Referentiality and Case

Firstly, why should it be that Case is distinctive in primarily being assigned to nominals? Why does lexical category matter? A possible answer is that, in fact, it doesn't, and that what really matters is *referentiality*, which is obviously *connected* to nominality, while being crucially distinct from it, for the reasons noted. Secondly, we may ask: What is the most obvious fact about PRO, which has been so central to Case theory, since it appears to escape from the Case filter? A possible answer is that while controlled PRO is referential (sharing the reference of the controlling nominal), it lacks lexical descriptive content on its own, of the kind that we find at any layer in our hierarchy of referentiality, which starts from predicative nominals having *maximal* lexical descriptive content, and ends with personal pronouns, which have *minimal* lexical descriptive content, lacking even Gender and (arguably) Number. Being non-overt, PRO *ipso facto* and necessarily lacks referential independence, even the *weakest* form in our hierarchy. Hence no *independent* referent is introduced into the derivation and needs to be licensed to an event-denoting head or proposition; the clause that contains it is destined never to become a truth-denoting proposition, remaining dependent on another clause that will bear the truth value. If Case licenses reference, we therefore *expect*, at least in English-type languages with impoverished Agreement, that the Case system should not 'see' PRO or assign 'null' Case, while it is triggered for more obvious candidates for grammatically referential interpretations such as pronouns (on languages with overtly Case-marked PRO, see below). The answer to a basic question of classical GB-Case theory, why Case assignment should be sensitive to phonetic content, would then be immediate:[21] in nominals, reference can be maximally or minimally dependent on lexical descriptive content. But where there is *no* lexical content, there is *no* referential independence, and it is rational to expect that PRO can escape from normal Case requirements.

Thirdly, we may ask why *clauses* should be exempt from the Case filter, as the contrast between **John is proud [his son]* and *John is proud [that his son won]* suggests. An answer now is that clauses do not canonically refer to objects. What if they do, on the other hand? Clauses *can* occur in a grammatically referential position, and refer to 'objects' insofar as these can be mapped from clauses (such 'objects' are called 'facts'). We then predict that clauses in such positions should *have* to pass

[19] Landau proposes a more elaborate control calculus, whereby clauses are specified as [+/− T] and [+/− Agr] and only clauses which are [+Agr] [+T] can host referential subjects, which may or may not be overt.
[20] Namely, the stipulation that an NP argument is PRO *iff* not governed at S-structure by a lexical item or [+tense] INFL. McFadden also admits in his conclusion that he has no viable alternative explanation for the distribution of PRO and the distribution of *for* in non-finite clauses.
[21] It could be claimed that the system mapping grammar to phonetic form (PF) needs to 'know' which form of a given DP to pronounce, but this does not seem to be a deep explanation of the existence of 'abstract Case'. It sheds no light, for example on why multiple Case forms exist in the first place.

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the Case filter.[22] And indeed they do, as argued in Kitagawa (1986) and Boskovic (1995). Our approach would then explain why the clauses in subject position in (38) create deviance: they require Case, but there is no Case assigner:[23]

(38) a. ??I believe [[$_{subject}$ that John loves Mary] to be surprising]
b. *It is likely [[$_{subject}$ that John loves Mary] to be surprising]
c. *It was believed [[$_{subject}$ that John loves Mary] to be surprising]

In making this point, on the other hand, these authors equate 'referentiality' with 'nominality', claiming that the clauses above are in fact *nominals*. While this is in line with a formalist approach, this is precisely a lexicalist misunderstanding of reference, which rather is a grammatical phenomenon: nominals *need* not be referential (they can be sentential predicates, as in *I am the mayor*), and referentiality requires the right *grammar*, as opposed to the right lexical category. Moreover, as has been argued in both Haegeman and Ürögdi (2010) and Sheehan and Hinzen (2011), clauses can be referential, namely fact-referential (factive), crucially *without* being nominals. Interpreted this way, Kitagawa and Boskovic's observation again creates a linkage between the requirement of Case-assignment and referentiality, now seen to cut *across* a difference in lexical category, making its grammatical character manifest. We can thus sharpen the above account, insofar as the notion of 'argument' does not coincide with referentiality: it is *referentiality*, which matters.

Fourth, it now also makes sense that languages that do not (or barely) mark Cases on nouns, like English or German, nonetheless mark them on pronouns (English) and on determiners (German): pronouns are paradigmatically referential devices, and determiners have long been regarded as regulating the referentiality of the common nouns to which they attach.[24] The reverse pattern – Case marking on bare nouns but not on pronouns, or on predicative nouns but not referential ones – is harder to observe typologically, to my knowledge, if it exists at all. Moreover, ACC and DAT morphology shows up obligatorily in the relational interpretations of strongly referential (deictic and personal) object clitic pronouns in Romance, rather than in clitics picking up the reference of weakly referential or predicative nominals, or of embedded clauses that function as predicates (Martín, 2012). In general, canonical accusative Romance object clitics *can* but *need* not refer to specific objects or persons, while dative clitics *must* be object-referential and have a deictic and personal interpretation (i.e., 1st Person or 2nd Person, targeting speech participants). As argued in Martín (2012), it is the latter that are grammatically more complex, properly *containing* the phrasal complexity of accusative clitics. In other words, as we move from predicative and neuter clitics, deprived of any φ-features, which cannot be referential, to accusative clitics, which *can* be referential, and then to personal and dative clitics, which *must* be referential, grammatical complexity increases, mirrored in the sequence of Cases assigned, and referentiality does as well (Martín and Hinzen, 2014). Outside the world of clitics, too, it has often been noted that ACC tracks definiteness as opposed to quantificational or indefinite readings, in languages with morphologically rich Case systems like Finnish (cf. Belletti, 1988; Kiparsky, 1998).

Fifth, it is now also expected that the 'exceptional' (ECM) accusatives illustrated in (1–2) would show up in clauses that are referentially 'weak', incomplete, and dependent, lacking finiteness, referential independence, and deictic anchoring in the speech context: the phase boundary of the embedded clause remains penetrable from the outside – an independent Case-domain is not demarcated – and therefore an exceptional Case, assigned by *v* from within the next phase, can enter. When the embedded clause is projected further and includes a C-layer, on the other hand, making it referentially more complete, such exceptional marking becomes impossible again:

(39) I *v* hope [$_{CP}$ C (*John) to be at the door]
(40) John tries [$_{CP}$ C (*Mary) to like French toast]

Moreover, ECM is expected to be illicit in factive complements, under the assumption that factivity is as close as embedded clauses can come to being referentially complete and truth-denoting, short of occurring as matrix assertions (Sheehan and Hinzen, 2011). And indeed, as Kiparsky and Kiparsky (1970) noted, in the canonically factive (41), ECM into the embedded clause is ruled out:

(41) *John regretted/resented Mary to be pretty.
(42) John believed Mary to be pretty.

Again we are looking at a hierarchy of referential completeness or strength, now in non-finite embedded clauses. Raising clauses are lowest in the hierarchy: the embedded clause can never incorporate any Case on its subject: it never becomes a Case domain, whether the Case comes from the inside or outside (43). With ECM verbs, the embedded domain gets a subject, but only a subject of sorts, since it is also or really an *object* of the matrix verb. A Case can penetrate the lower domain, as long as the clause is not fact-referential, yet the Case does not come from within its domain yet. Moreover, it lacks its own independent Tense (44).

[22] As Halldor Sigurðsson (p.c.) notes, the accusative on 'me' in *[That John was happy] surprised me/*I* suggests that grammatically referential clauses are Case-visible.
[23] As a referee notes, in (b–c), normal DPs would be out too, but in (a) they would normally not be.
[24] Consistent with this, the 'augments' on nominals in Bantu languages that Halpert (2012) argues to be inherently Case-bearing are often said to be D^0-categories, and to be semantically/pragmatically linked to such notions as definiteness and specificity (see e.g. Taraldsen, 2010).

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(43) Mary seems *t* to be pretty RAISING
(44) I believe her to be happy (*tomorrow). ECM

Next, with Control verbs, the embedded clause *has* its own independent subject, though it is still lexically non-overt. Temporal independence now becomes possible (45):

(45) I hope/try PRO to be at the door tomorrow. CONTROL

It makes sense, therefore, too, that in a variety of languages including Icelandic and Russian, PRO subjects not only carry Case but their own *independent* one: at this level of complexity and referential independence, the embedded clause has become its own Case domain. Thus, in Icelandic, the mechanism of Case assignment is arguably different in raising and control, with Case independence in the embedded clause only in control, and Case assignment arguably independent of A-movement (Sigurðsson, 2008:420; see also Wood, 2012; Ndayiragije, 2012). For Russian, Landau (2008) has argued that (46) suggests through Case concord that PRO can be licensed by the head of the embedded clause:

(46) Ivan pokljalsja druzjam [PRO_{DAT} sdelat' eto sam/samomu zavtra]. RUSSIAN
Ivan.NOM vowed friends to.do it himself.NOM/DAT tomorrow
'Ivan vowed to his friends to do it alone tomorrow.'
NOM OK—73%; DAT OK—45%

(47) Ona poprosila ego [PRO_{DAT} ne ezdit' tuda odnogo/odnomu zavtra].
she.NOM asked him.ACC not to.go there alone.ACC/DAT tomorrow
'She asked him not to go there alone tomorrow.'
ACC OK—60%; DAT OK—90% (Landau, 2008:890)

Interestingly Landau argues that 'Case independence' in the embedded clause in this sense is limited to *tensed* infinitival contexts, namely contexts where an embedded clause can be modified by a temporal adverb like 'tomorrow', which indicates a different temporal anchoring from the one in the matrix clause. Only where embedded clauses are tensed, is PRO 'case-licensed' within the non-finite clause, again illustrating a correlation between referentiality, finiteness, and morphological Case. The present approach makes it natural to expect that Tense would matter: Tense is essential to the referential anchoring of objects, events, and propositions. Whenever a clause is tensed, in that it has its own temporal reference, it is to that degree referentially more complete, and it needs and can take a subject: its phase can in this sense 'close'. As a phase completes and referentiality is established, argument DPs need to enter licensing relations with the heads that denote entities of which they become parts. 'High' or NOM-case is associated with the establishment of propositional claims, which depends on the high left field of C, where speech features and force are checked (Sigurðsson, 2004, 2008). Such checking ultimately requires finite Tense: without it, there is no full proposition.

Even in languages like English, which lack Case concord, there is some evidence that tensed infinitivals differ from tenseless infinitivals in the licensing of PRO, as they should if there is a hierarchy of referentiality in the present sense, with the tenseless clauses lower than the tensed ones. This evidence comes from the existence of *partial control*. Example (48a) shows that predicates such as *meet/kiss/part company* require a plural subject:

(48) a. *John met/kissed/parted company early this morning.
b. %$John_i$ proposed/preferred [PRO_{i+} to meet/kiss/part company].
c. *$John_i$ managed/began [PRO_{i+} to meet/kiss/part company].

(48b) shows that when such verbs occur in *tensed* infinitival contexts, such verbs are legitimate even where their controller is singular. (48c) shows that this is not the case where these verbs occur in an *untensed* infinitival clause. A tensed infinitival clause, in other words, being more referential, licenses its own subject, which in these cases is only partially controlled by the antecedent.

Sheehan (2012, building on Raposo, 1989; Sitaridou, 2007; Sheehan and Parafita Couto, 2011, on European Portuguese, and Rabelo, 2010; Modesto, 2007, 2010, on Brazilian Portuguese) shows that the distribution of inflected infinitives in European Portuguese in Control contexts is also sensitive to the tensed/untensed distinction. Inflected infinitivals are only possible in *tensed* non-restructuring environments like (49):

(49) O professor obrigou os $alunos_i$ [a PRO_i ler(em) o livro].
the teacher obliged =me/ the students to read.INF.3PL the book
'The teacher obliged the students to read the book.' (Sitaridou, 2007:195)

It has been independently established that the inflected infinitive can establish the kind of dependency marked morphologically normally by NOM, hence the fact that overt subjects are possible where inflected infinitives surface as adjuncts (50), subjects or as the complements of factive/epistemic verbs (51):

(50) *pro* escrevi a carta [para (eles) perceberem].
wrote.1SG the letter for them understand.INF.3PL
'I wrote the letter in order for them to understand.'

(51) Será difícil [eles aprovar*(em) a proposta].
be.FUT.3SG difficult they approve.INF.3PL the proposal
'It will be difficult for them to approve-Agr the proposal.' (Raposo, 1989:86)

Moreover, raising is possible only from uninflected infinitival clauses (Raposo, 1989:297; Quicoli, 1996:59):

(52) Os meninos parecem [t_i ter(*em) razão]
the boys seem.PRES.3PL have.INF.3PL reason

As predicted, partial control in European Portuguese is also limited to tensed infinitival contexts and true instances of partial control require inflection (cf. Sheehan, 2012, on 'fake' Partial Control).

Taken together, the data from Case independence, partial control, and inflected infinitives all suggest that while PRO can escape the Case filter, its Case-marking depends on elements of the referential hierarchy: in particular, tensed infinitival clauses differ from untensed infinitival clauses in that the former but not the latter license PRO (cf. Cinque, 2006; van Urk, 2010; Grano, 2012). Only domains sufficiently independent in terms of their referential potential are able to be their own Case domain and license a subject. Since the Case and Agreement data from morphologically rich languages such as Portuguese, Russian and Icelandic suggest that PRO enters the kind of dependencies morphologically marked through Cases, it is unlikely that we can attribute all instances of Control to movement, which was one of the crucial functions of the Case filter in its classical sense.

Our initial example (3–4) from Basque, now also makes sense. There we saw that a switch from the nominal *that* to the clause *PRO to lose weight* is correlated with a switch from normal transitive Case morphology involving an ergative matrix subject, to an essentially intransitive Case system. Deictic *that* is paradigmatically referential in this context, whereas *PRO to lose weight* refers to no object, and is not even evaluable for truth and falsehood, failing to express a full proposition with its independent truth value. Moreover, as Uriagereka (2008) notes, the switch in the Basque Case system in question is not confined to PRO complements, but extends to other 'referentially weak' clause types, such as subjunctives. In (53a), we see no PRO in the embedded clause, yet still, the matrix verb acts in the 'intransitive fashion', whereas, in (53b), which is a normal transitive with an indicative complement, the normal Case system appears again:

(53) a. Jon [Mirenek pisua gal zezan] saiatu zen
Jon-ABS Miren-ERG weight-ABS lose have-subj-LOC try-PART III.be
'John tried that Mary lose weight'
b. Jonek [Miren polita dela] pentsatzen du
Jon-ERG Miren-ABS pretty is-COMP think-PART III.have.III
'Jon thinks that Mary is pretty'

(53b) as a fully propositional complement, in the sense that the content of Jon's thought is either true or false. No such propositional complement exists in (53a), and again we see that the clause as a whole is not recognized as an object of normal Case-assignment, leading instead to the same curious locative Case specified on the clause, which we see in (3). The only element that activates the Case is the referential subject of this clause, which thus comes out 'unaccusative', being marked ERG. The fact that, nonetheless, we find *some* Case in the non-finite or subjunctive clauses concerned, moreover suggests that *whenever* there is an argument, the Case system is activated in some way. Which Case is involved depends on the referentiality of the argument, with 'null Case' reserved for referentially low-key elements like non-referential clauses or PRO, and canonical definite DPs marked positively for Person as the canonical candidates for structural Case, as opposed to indefinites, verbal predicates, or clauses, which carry no personal interpretations (cf. Uriagereka, 2008:110, 124–126).

This account may extend to the 'unaccusative' Case called 'partitive' in Belletti (1988), which she argues is assigned by unaccusative verbs as well, locally at the VP level, and corresponds to indefinite and impersonal nominals:

(54) a. Poeydaellae on kirjoja.
on the table is (some) books(PART, PL)
'There are some books on the table.'
b. Helsingistae tulee kirjeitae.
from Helsinki comes (some) letters (PART, PL)
'There come some letters from Helsinki.'

The lack of licensing of definitely referential nominals through such Cases has effects on what kind of event is referenced. The matter has been classically described in terms of verbal Aspect, as in Kiparsky's (1998:1) statement that, 'in its aspectual function, partitive case is assigned to the objects of verbs which denote an *unbounded* event', as illustrated in (55) (Kiparsky, 1998:3):

(55) a. Ammu-i-n karhu-a/ kah-ta karhu-a/ karhu-j-a **Finnish**
shoot-PAST-1Sg bear-PART/ two-PART bear-PART/bear-Pl-PART
'I shot at the (a) bear / at (the) two bears / at (the) bears.' (activity)
b. Ammu-i-n karhu-n/ kaksi karhu-a/karhu-t
shoot–PAST-1Sg bear-ACC/ two.ACC bear-PART/ bear-Pl.ACC
'I shot the (a) bear / two bears / the bears.' (accomplishment)

In Finnish, predicates which are inherently unbounded almost always assign PART to their complements (e.g. states, intensional, motion/contact (touch)). This is part of a more general typological trend (Travis, 2010:136), and it has been taken as good reason to believe that ACC may be directly involved in the calculation of event semantics, viewed as something that is, contrary to the proposal of the present paper, independently and non-grammatically determined (effectively, semantically). Kiparsky (1981:1) specifically argues that Finnish instantiates a 'semantically conditioned structural [C]ase'. However, *prima facie*, the difference between (55a) and (55b) is again one to do with *reference*: a specific single bear or several specific bears are said to be shot and killed in the latter, but not the former. As a result, a specific event is being referenced, involving one or more specific bears, all of which end up shot (and possibly dead), reflecting a *state* in which the event in question pans out. In the former case, no specific bear is referenced, and any bear involved may have escaped unscathed. ACC-marking in this sense reflects a shift in *reference*: an object is licensed to an event in both cases, as part of a V-DP dependency. But the progression from PART to ACC suggests an increase in referentiality, analogously to the case of Romance clitics above, with ACC assigned by *v*. In a similar spirit, de Hoop (1996) takes *v* to assign ACC to arguments specified positively for Person, while V assigns 'impersonal' null Case to indefinite arguments. This is the same progression, from indefinite to definite/personal, reflecting both a progression in referentiality and a grammatical progression within the verbal phase (see also Uriagereka, 2008:124).

Another such progression is found in the nominative, translative, and essive Case marking of the non-verbal predicates of Finno-Ugric Small Clauses (SC), as investigated by Matushansky (2012). Matushansky investigated the following SC constructions in Finnish, Estonian, and Hungarian, starting from the bare minimum of structure in (56), which excludes even a verbal root in the matrix position:

(56) Sam_i is [SC t_i sad]. PRIMARY PREDICATION
(57) a. Sam_i seems [SC t_i mad]. RAISING, STATIVE
b. Sam_i became [SC t_i mad]. RAISING, DYNAMIC
c. Sam considered [SC Lee mad]. ECM, STATIVE
d. Sam made [SC Lee mad]. ECM, DYNAMIC (CAUSATIVE)

In the transition from (56) to (57a), a clear progression in complexity is involved, insofar as there is a verbal root involved in the latter, entailing a second 'event'-variable in Neo-Davidsonian terms, even though its lexical content is still minimal. In (57b), a dynamic change-of-state element is added. Transitivity licensing an external argument is added in (57c), and is more complex still; a causative element appears in (57d). Matushansky shows that Transitive verbs systematically yield an increase in the markedness of the Case assigned to the non-verbal predicate with respect to change-of-state verbs, which in turn yield an increase with respect to stative raising verbs. Primary predication is *least* marked in terms of Case assignment, receiving Nominative e.g. in Finnish, where this Case is the least marked (or perhaps non-) Case, while essive is a default predicate when Aspect is involved, with Estonian restricting the essive Case to non-finite contexts (as in depictives). We therefore again observe an increase in 'semantic' complexity – in the present terms, an increase in *formal-ontological complexity* and relevant part-whole relations entailed by it – which is tracked by an increase in *grammatical complexity*, as tracked by morphological *Cases*, in line with the present approach.

7. Conclusion

Referentiality has, for half a century, most paradigmatically *not* been a grammatical concept, excluded from 'internalist' inquiry (Chomsky, 2000b). My basic objection to this strategic decision is that reference finds no home in any *non-grammatical* domain. As we look empirically at what forms of reference exist, moreover, in both the nominal and clausal cases, we see them systematically co-varying with forms of grammatical complexity and ordered in hierarchies, which Case assignment, systematically enough, appears to track. Which *other* function could grammar be said to serve, if *not* that of turning the conceptual atoms of a lexicon into referential expressions on an occasion of their retrieval? We cannot *but* use language referentially – i.e., to think or talk about the world. A Merge-based conception of grammar will only tell us that its essence is to *combine*.

As grammar starts acting on lexical concepts, phasal units are generated that come with referential potentials that depend on their respective degrees of completeness. Where finiteness is missing in an embedded context, clauses lack subjects or have empty ones: the phasal boundary is different and there is a lesser degree of referential independence, which is tracked in Case-assignment systems. Licensing referential arguments involves the crossing of phasal boundaries when nominals enter event- and proposition-denoting phrases. The resulting cross-phasal dependencies come with interpretive correlates in the formal ontology of semantics that has to be in place in order for a rational mind to exist. Thematic structure is

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insufficient for that, and instead this ontology is reflected in normal Case-assignment patterns, which become non-normal or exceptional when the full referential potential of phasal units fails to arise, or grammatical arguments are non object-referential. Insofar as it is so reflected, Case is rational.

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